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# EMERGING ISSUES IN AFRICAN POPULATION AND HOUSING CENSUS PROGRAMMES

## ENUMERATION PROCEDURES

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## INTRODUCTION

1. A population census has been described as the single most extensive and complex statistical operation. It involves many interrelated activities which are usually divided into three main phases, namely pre-enumeration activities, enumeration and post-enumeration activities.

2. The activities in each of the three phases require careful planning and execution to ensure a successful census. The enumeration phase, however, is regarded as very critical since the quality of the census results depends to a very large extent on the adequacy of the enumeration.

3. The enumeration phase of a census programme involves the procedures for the collection of information from the people who constitute the population. The major factors which determine the enumeration procedures in a population census include types and level of detail of information required, the desired unit of analysis, the stage of development of the country and the settlement pattern.

4. The elements which constitute the enumeration procedures in censuses include: unit of enumeration, basis for enumeration, method of enumeration, the census questionnaires, reference time and duration of enumeration. Other elements in census enumeration procedures are use of sampling in collection of data and quality control programmes but these will not be discussed in this paper.

## UNIT OF ENUMERATION

5. One of the essential features of a modern population census is individual enumeration. Thus the basic unit of enumeration in a population census is the person. However the persons who constitute the population are identified in socio-economic groups of which they are part and/or in the places where they live.

6. Households, dwellings, houses and compounds are therefore some of the concepts which have been used to indicate the additional units of enumeration in African censuses during the past two decades.

7. In general, for most of the population censuses carried out in the African region during the recent past, the additional unit of enumeration of persons in private housing units has been the household which has been defined as consisting of a person or a group of persons with common living and catering arrangements.

8. A number of countries, however, have found the application of the concept of household in their census enumeration rather difficult and have therefore been reluctant to use it as an additional unit of enumeration. For example, in the 1960 population census of Ghana the house or compound was used as the additional unit of enumeration and no attempt was made to divide persons in houses or compounds into households. The concept of household was however tried out in the post-enumeration survey and since then the concept has been used in subsequent population censuses carried out in the country.

9. In the Malawi censuses of 1966 and 1977 dwelling unit instead of household was used as the additional unit of enumeration and even though information on relationships within dwelling units was collected on the census questionnaires, it was only for identification purposes and the information was not processed to produce any tabulations.

10. In the cases where household has not been used as a unit of enumeration in population and housing censuses, it has been mainly due to the social systems which make it difficult to divide extended family groups into smaller socio-economic units for purposes of data collection and also the contention of some census organizers that the concept of household as defined in international publications, is not applicable in their situation.

11. It needs however to be stressed that for purposes of demographic and socio-economic analysis of the census data it is essential that individuals covered in population and housing censuses are not only associated with specific living quarters but also the basic socio-economic and/or biological group which forms the basis of the social structure. Census organizers and other social scientists in the African region therefore need to undertake studies which will enable them identify and define such human group in their respective cultures to ensure the collection of relevant data which will be useful for socio-economic development planning programmes.

12. It needs to be pointed out that though there might be difficulties in defining household or other relevant basic socio-economic group for purposes of data collection and at times such a group may not be easily distinguished from the living quarters, it is essential that the two concepts are maintained as related but separate useful additional units of enumeration. These units of enumeration which for housing censuses include also buildings (structures) should be clearly defined and examples given in enumerator's instructions manuals and clearly pointed out that the terms (household or other group, living quarters i.e. dwelling units, institutions, etc and building) are not interchangeable since there is not necessarily exact correspondence among them.

BASIS FOR ENUMERATION

13. Census enumeration is carried out according to where persons spent the census reference time (census day or census night) or according their usual place of residence irrespective of where they spent the census night or day.

14. The former procedure results in a defacto count of the population while the latter provides a modified form of dejure count.

15. For purposes of development planning it is generally accepted that a dejure count of the population provides a more useful information but in some countries the definition of usual residence poses a problem and

enumerators find it difficult to understand and apply the definition correctly. On the other hand, though the usefulness of the defacto count is limited it does not have problems relating to definition and enumerators can easily understand the concept. Apart from the limited usefulness of the defacto count for some purposes, it also has a drawback if a sample of persons are to be re-interviewed in a post-enumeration evaluation programme.

16. A review of African censuses conducted during the 1980 round of censuses shows that both the dejure and defacto approaches were used. Some countries asked questions which made it possible to determine both the defacto and dejure populations while others enumerated either the defacto population only or the dejure only. In the cases where both types of populations were investigated, the household population was classified into three categories, namely, usual household members present (at reference night/day), usual household members absent and visitors. The detailed census questions were then obtained in respect of the 'usual members present' and 'visitors' if the population was being enumerated on a defacto basis. If the population was being counted on a dejure basis, the detailed questions were addressed to 'usual members present' and 'usual members absent'. In a few cases, the detailed questions were asked of all three categories and the distinction between the defacto and dejure populations was made at the data processing stage.

17. One issue which needs some examination and for which a number of countries in the region might benefit from the guidance of the working group is the treatment of nationals outside the country during the census. In some cases, no limitation was placed on the duration of absence of nationals from the country for their inclusion in the dejure count. In one other case, though a defacto count was carried out, information on household members outside the country was obtained and added to the defacto count and the resultant total described as the dejure population.

18. In the absence of clear description of the population groups which constitute the total population, the mere reference to a dejure or defacto population is misleading.

19. Further the quality of detailed information on absent members, particularly those who have been absent for a number of years, is doubtful and may be even misleading. Perhaps in countries where data on absent nationals need to be collected, information in respect of such persons may be restricted to name, sex, age relationship and length of absence.

METHODS OF ENUMERATION

20. The two major methods of census enumeration are the direct interview method involving use of trained enumerators in a house-to-house canvassing and the self-enumeration or householder method where the census questionnaire is distributed and the required information entered on the questionnaire by a responsible member of the household, usually the head of household.

21. In almost all the censuses carried out in recent times the canvasser method has been used. In at least one country - Mauritius - however, a combination of the self-enumeration and canvasser methods was used. The questionnaires were distributed to households a few days before census night, and heads of households were required to complete all questionnaire items except those on economic characteristics. Collection of the questionnaires started on the day following census night. Before collecting the completed questionnaires, enumerators checked entries on the spot and completed the questionnaire columns on economic characteristics. In one other country - Mozambique - a combination of the group-assembly method and house-to-house canvassing was used in the enumeration of the population. The group assembly method was used in areas of dispersed settlements while house-to-house canvassing was confined to areas of high density.

22. In view of the present level of development in many African countries, it is generally expected that the direct interview method will be most appropriate for satisfactory census enumeration and, indeed, as stated earlier, almost all countries in the region used that method in their recent censuses.

23. One advantage of that method is that it should help in completing enumeration in a shorter time. However, in some countries, that advantage could not be realized mainly because of inadequate estimation of the number of enumerators needed to complete the enumeration within the planned period. Thus, in a number of countries the duration of enumeration had to be extended considerably.

24. In a few instances, census organizers had to quickly mobilize additional enumerators in the course of enumeration. Such situations often involved the use of hastily trained or even untrained enumerators with the resultant poor quality of data.

25. It is suggested that the above-mentioned problem can be overcome to a great extent through early start of the cartographic preparations to ensure the timely completion of the demarcation of enumeration areas (EAs) and the preparation of E.A. maps. If the cartographic work is done well and timely, there would be adequate information for the proper estimation of the required enumeration field staff. There would also be enough time for their recruitment and training.

26. In any case, panic decisions need to be avoided. If the choice is between extension of the enumeration period and the use of inadequately trained enumerators then preference should be for the former.

CENSUS QUESTIONNAIRE

27. The principal document in census enumeration is the questionnaire which is used to collect information from the population.

28. Census questionnaires may be classified into three main types. These are: individual questionnaire, single household questionnaire and multihousehold questionnaire.

29. Countries in the region used single household questionnaire for their censuses. In addition to the household questionnaire some countries,used a different type of questionnaire for the population in collective living quarters. Other countries used the household questionnaire to cover the institutional population also. In such cases enumerators were instructed to treat the questionnaire items which were not relevant to the institutional population as "not applicable".

30. Other issues relating to the census questionnaire are the wording of questions and the method of recording responses. Many of the questionnaires which have been used in the region contained the topic and the exact wording of the questions which enumerators were expected to put to respondents such as 'EDUCATION'; "What is the highest academic level reached?" (Zimbabwe 1982). In some cases, however, the questionnaire contained only the topic such as "Economic Sector" (Sudan, 1983) and the enumerator had to frame the relevant question(s) at the time of enumeration.

31. A review of the various practices suggests that some attention need to be given by census organizers in the region to the wording of questions particularly in view of the low level of education of some enumerators. The danger of enumerators varying the intent of the topic when they have to frame the questions themselves cannot be ignored. A related problem is the situation where two or more languages are used in a country. This problem has been dealt with in a few countries through the use of multilingual questionnaire or different versions of the questionnaire for the major languages or inclusion of translations of the questions in a few major languages in the enumerator's manual.

32. In many countries, however,no attempt was made to provide standard translations of the questions though it was known that the language used in the design of the questionnaire would, in most cases, not be the language of interview. The reluctance of census organizers in those countries to provide standard translations had been attributed to the difficulty in providing translations in the many languages used in the countries.

33. The language problem needs to be taken more seriously and efforts made to provide standard translations in at least a few major languages in order to minimize dependence on enumerators to improvise translations at the time of enumeration. Efforts in that direction may help in obtaining accurate and consistent answers to census questions and thus help in improving the overall quality of the census information.

34. Another issue which needs some examination and guidance of the working group is the method of recording answers on the census questionnaire. Generally the procedure in the recent censuses in the region involved enumerators recording in words the answers given by respondents or in

figures where the question demanded a numerical response. Some countries used also pre-coded responses where enumerators were required to mark a box to indicate the appropriate response to a question. In a number of countries where precoding was used, however, enumerators had to select the appropriate code from a number of precoded acceptable responses and then record only the code on the questionnaire.

35. The procedure of using enumerators to code the census information is supposed to speed up post-enumeration processing but its effect on the quality of the census data needs to be carefully assessed through census tests. Perhaps until the results of such tests are known and/or high quality enumerators become generally available, a compromise strategy might be that enumerators should record both the verbal responses and their codes particularly in cases where acceptable response categories are more than five.

CENSUS REFERENCE TIME AND DURATION OF ENUMERATION

36. Another essential feature of a modern population and housing census is simultaneity. Thus persons should be enumerated with respect to a well-defined point of time and the information collected should refer to a well-defined reference period even though the reference period need not be identical for all the various data being collected.

37. Many countries in the region attempted to achieve simultaneity by selecting a particular night or day as the reference point in time and persons were enumerated with reference to that time even though the enumeration extended over several days or weeks. Other countries, however, used a moving reference time which was either the night before the enumerator's visit to each household or the Sunday night preceding the visit. In a few countries different parts of the country and/or different population groups such as the settled and nomadic populations were enumerated at different times.

38. The failure of some countries to adhere to simultaneous enumeration was because enumeration could not be completed within a short period. Generally, the duration of enumeration in African censuses ranged from 5 to 14 days. In some cases, however, enumeration had to continue in parts of some countries for about one month or more. The long period of enumeration has been attributed to shortage of potential census field staff in parts of some countries, unsatisfactory cartographic preparations, lack of logistic support for a large field staff and financial constraints.

39. The countries which have used a moving reference period have therefore argued that since for various reasons enumeration could not be carried out within a short period, the population would not be able to provide information in respect of a single reference night.

40. It must, however, be pointed out that a long period of enumeration together with a moving reference period may increase coverage error and also make the interpretation of the data more difficult.

41. A potential compromise procedure which seems to allow sufficient time for enumeration and yet ensure simultaneous enumeration is advance enumeration. This procedure was used in the 1976 Population Census of Swaziland. A preliminary enumeration of the entire population was carried out during the ten days preceding the census reference night and a final enumeration lasting four days conducted after census night to check whether respondents spent census night in the homesteads concerned and any necessary amendments made.

42. The procedure, however, increases travel time and cost and is often not practicable. Enumerators may be reluctant to update the household composition and it may be difficult for them to relate the characteristics of persons to the census reference point of time when enumeration is carried out several days before that reference time.

ENUMERATION OF SPECIAL POPULATION GROUPS

43. The procedures discussed so far are mainly in respect of the settled stable population in private housing units or compounds. In addition to the household population, however, a country's population may include persons in relatively stable institutions such as hospitals, boarding schools, prisons, military barracks, etc. and residents of hotels, motels, rest houses, etc. Some countries may also have a sizeable number of homeless/outdoor sleepers, nomads and/or other special groups.

44. It is therefore necessary that census organizers take cognizance of such groups, if any, and prepare instructions and train enumeration field staff on special procedures for the coverage of such population groups. Indeed the proposed procedures need to be tested. In some of the censuses which have been carried out in the African region, however, serious attention did not seem to have been given to the issue of special population groups. In some cases, the indications were that perhaps the size of those groups was not significant enough to warrant special attention and additional cost for their coverage.

45. In other cases, the definition of total population adopted and procedures used for the enumeration of the population did not make it necessary to have special provisions for the coverage of some types of special population groups. For example, countries which used the de jure approach did not make special arrangements to cover patients in hospitals and students of boarding schools since it was expected that such persons would be covered in their respective private households.

46. In the censuses in which the de facto approach was used, the population in institutions was generally enumerated with the cooperation of the authorities of those institutions. In some cases, special enumerators, some of whom were inmates of the institutions concerned such as military personnel, were assigned to enumerate institutions and in other cases institutions were covered by the regular enumerator for the enumeration area in which the institution was located.

47. Two main types of procedure seemed to have been used to enumerate the relatively stable institutional population. In one approach the inmates were enumerated a few days before census reference night and the information updated on the day following the census night with the assistance of the authorities. The other approach did not involve advance enumeration. In this case the institutional population was covered during the first few days of the census enumeration with the assistance of the authorities. In both approaches the records of the institutions were used as much as possible.

48. On the other hand, the coverage of residents of hotels and rest houses as well as the homeless/outdoor sleepers was, generally, done on a specific night, usually immediately after census night. In some cases, residents of hotels and rest houses were enumerated just before census night and the lists updated immediately after census night.

49. Supervisors were expected to have prepared lists of locations of outdoor sleepers, hotels, rest houses, etc. with an estimation of the expected number of persons in each location and then to assign enumerators for the coverage of such places on the designated night accordingly. In many instances, however, such lists were not prepared in advance but arrangements were nevertheless made for enumerators to visit suspected locations of homeless persons and hotels/rest houses and to enumerate persons found there. In some cases, due to inadequate preparations, the exercise could not be completed on the designated night and had to be repeated.

50. On the whole, it does not seem that a satisfactory approach has in practice been used for the coverage of the homeless/floating population even though in theory the proposed plans appeared to be adequate. The homeless persons constitute a small proportion of the total population but their enumeration poses such problems that without careful advance planning they cannot be adequately covered. It needs to be remembered, however, that even though they may constitute a small proportion of the total population they may be a significant element in some areas of many large cities and therefore of special interest to town planners and social welfare agencies. Unfortunately there has been the tendency for census organizers to underestimate the workload involved in their coverage.

51. Another special population group which in some countries in the African region constitute a large proportion of the total population is the nomads. Their coverage require special arrangements and procedures. In some countries, for example Somalia, the nomads were enumerated at a different time from the settled population. Other countries made special arrangements to cover them about the same period as the settled population.

52. The main methods which have been used for the enumeration of nomads are: (a) group-assembly approach (b) tribal or hierarchical approach (c) enumeration area approach (d) water point approach and (e) camp approach. Sometimes a combination of two or more methods are used in the enumeration of the nomadic population.

53. The main issue which needs to be stressed is that studies of the social systems and patterns of movements of the nomadic population should be carried out as part of the census preparatory activities before the determination of the most appropriate approach or a combination of approaches for their enumeration. Aspects of the required studies could be included in the census pre-enumeration cartographic work programme.

54. The disabled persons in a country also constitute a special population group of particular interest to planners of welfare and socio-economic development programmes; and population censuses provide an opportunity to collect some information on them.

55. It is recognized that disability is a specialized topic and it may not be possible to collect technical data on it in a population census. However, population censuses provide a unique opportunity to collect information on persons with selected severe disabilities which are relatively easily recognizable such as blindness, deafness, loss of one or more limbs, etc and their demographic and socio-economic characteristics. Further, census data on disability can provide a frame for more intensive small-scale studies.

56. The coverage of the disabled does not require special procedures other than those used for households, institutions, etc. Such persons are members of the various population groups usually covered in population censuses. Their identification, therefore, only involves the inclusion of question(s) on disability on the census questionnaire. The major problem in the collection of the required information, however, is the definition and classification of disability and techniques of interview to ensure satisfactory enumeration in situations where social reticence could make it difficult to obtain adequate response.

57. A review of topics investigated in African censuses during the 1980 round shows that 9 countries asked questions on disability. At least one other country obtained partial information on disability through the classification of the economically inactive population. The information obtained through that procedure, however, relates only to disabilities which prevented the persons concerned from engaging in any economic activity.

58. It needs to be pointed out that with the adoption in 1982 of the World Programme of Action concerning Disabled Persons, there has been growing interest in the issue of disability and demand for data on disabled persons. More African countries therefore need to give serious consideration to the investigation of disability in their next round of population censuses.